1998

INTERMEDIATE

MATHEMATICS

ANCHOR PAPERS

SESSION 1

Glee Club

SCORE 2

Directions

Numbers *7* **through 10** are **about** a **school Glee Club** preparing for its winter concert Show **all** of your **work** and write your answers **directly** in **this booklet.**

1 **In** preparing for their **winter concert, the Glee Club purchased 5 gallons of paint** to create a backdrop for the stage. The total **bill** for **the** paint was **$109.73, including $5.23 sales** tax. The **club's** sponsor wants to know. the cost of ***one* gallon** of paint

To find **the** cost of one **gallon** of paint, **solve** the **equation** $5n + \$5.23 = \$109.73$, where n represents **1 gallon** of paint **in** the box **below,** provide the **work** that **shows how** you arrived at your answer.

$5n + \$5.23 = 109.73$
$-5.23 \quad -5.23$
$5n = 104.50$
$\frac{5n}{5} = \frac{104.50}{5}$

$5\overline{)104.50} = 20.90$

$n = \$20.90$

Correct process

Correct answer

Exemplary Response

Glee Club

SCORE 1

Directions

Numbers 7 through 10 are about a **school Glee Club** preparing for its winter concert **Show all** of your work and **write** your answers **directly** in **this booklet.**

1 In preparing for **their winter concert,** the **Glee Club purchased 5 gallons of** paint to create a **backdrop for the stage.** The total **bill** for the paint **was $109.73, including $5.23 sales** tax. The **club's** sponsor wants to **know the cost of *one* gallon of** paint.

To find the **cost of** one **gallon** of paint, soive **the equation** $5n + \$5.23 = \$109.73$, where ***n* represents 1 gallon** of paint. **In** the box **below,** provide the **work** that **shows how** you arrived at your answer.

$5n + 5.23 = 109.73$

$-5.23 \quad -5.23$

$\frac{1}{5}5n = 104.5\frac{1}{5}$

$n = \$21.84$

Correct process

Error in computation gives wrong answer

Glee Club

SCORE 0

Directions

Numbers 7 through 10 are about a school Glee Club preparing for its winter concert. **Show all** of your **work** and **write** your **answers** directly in thii **booklet.**

1. In preparing for their winter concert, the Glee Club purchased 5 gallons of paint to create a backdrop for the stage. The total bill for the paint was $109.73, including $553 sales tax. The club's sponsor wants to know the cost of one gallon of paint

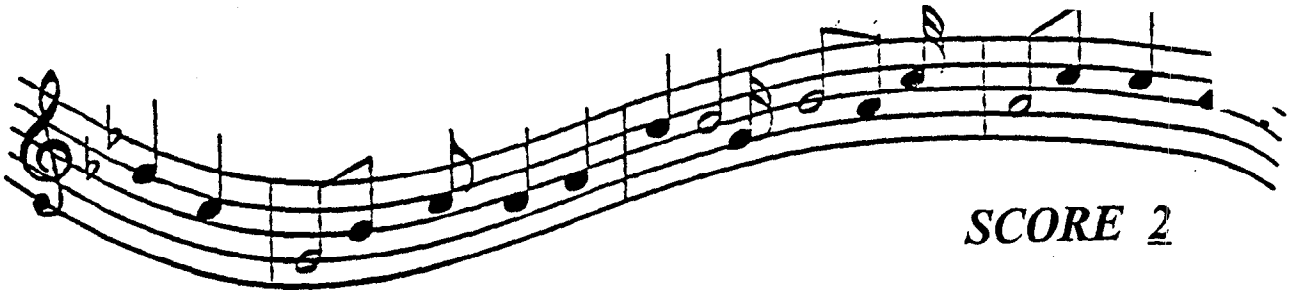
To find the cost of one gallon of paint, solve the equation $5n + \$5.23 = \$109.73$, where n represents 1 gallon of paint in the box below, provide the work that shows how you arrived at your **answer.**

109.73
+5.23
114.96
1
5
22.992 rounded to 23

23

Incorrect answer

Incorrect process added instead of subtracted



SCORE 2

Janette, Carla, and Mijo are performing a special number in costume during the concert. Each of their costumes will require $3\frac{5}{8}$ yards of materiaj for the outfit and another $1\frac{3}{4}$ yards of materiaj for tie hat.

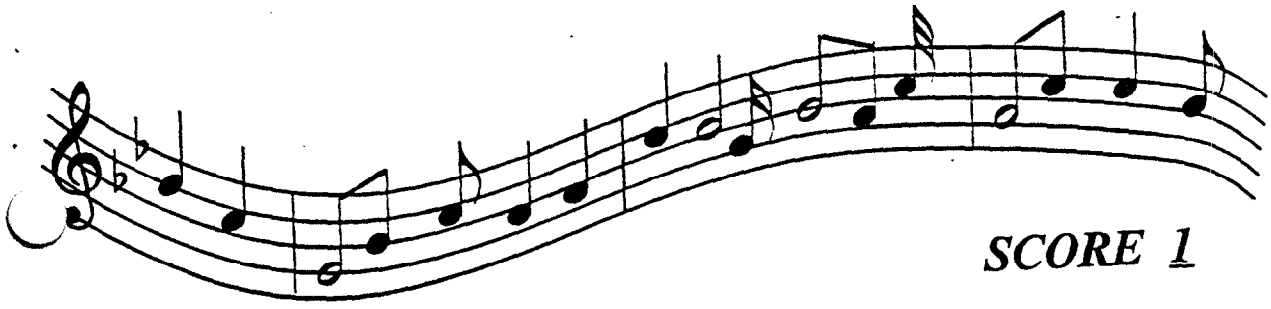
How much materiaj is needed in ajj for the 3 complete costumes? In tie box below, provide the work that shows how you arrived at your answer.

$$\begin{array}{r} 3.625 \\ +\ 1.75 \\ \hline 5.375 \text{ (per person)} \\ \times\quad 3 \\ \hline 16.125 \text{ (all togeither)} \end{array}$$

Correct process

Correct answer

Exemplary Response



SCORE 1

2 **Janette,** Caria, and Miio are performing a special number in costume during the concert. Each of their costumes will require $3\frac{5}{8}$ yards of material for the outfit and another $1\frac{3}{4}$ yards of materiai for the **hat.**

How much material is needed in ail for the 3 complete costumes? In the box below, provide the work that shows how you arrived at your answer.

$3 \times 29/8 = 87/8 = 10.875$

Correct process

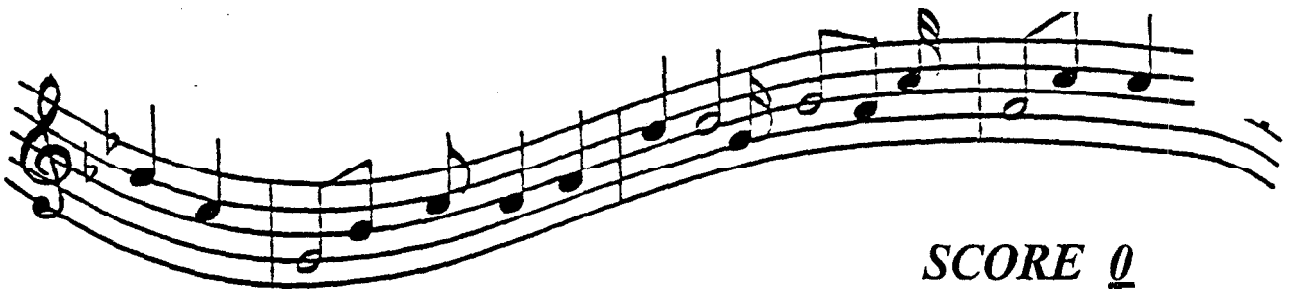
$3/1 \times 7/4 = 21/4 = 5.25$

Error in computation gives wrong answer— didn't carry the 1 from 7 + 5

$$\begin{array}{r} 10.875 \\ 5.25 \\ \hline 16.025 \text{ yards} \end{array}$$

157066

Go On



SCORE 0

2 **Janette, Carla, and Milo** are performing a **special** number in costume **during** the **concert. Each of their costumes will** require $3\frac{5}{8}$ yards of material for the outfit and another $1\frac{3}{4}$ yards of materiai for the hat

How much materiai is needed in ail for the **3 complete** costumes? In the box below, provide the work that shows **how you** arrived at your answer.

$12\frac{5}{8}$

Incorrect answer

$3\frac{5}{8} \times 3$ people $+ 1\frac{3}{4}$ for hat

Incorrect process—multiplied 3 5/8 by 3 and then added 1 3/4, when they should have added 3 5/8 to I 3/4 and then multiplied by 3

Directions

Use the information in the chart below to do Numbers 9 and 10.

The Glee Club kept track of the attendance at each of their 4 performances. At the end of the 4 performances, they had the following information:

A-DANCE PER PERFORMANCE

Performance	Student	Adult
1	75	120
2	95	136
3	110	126
4	100	150

SCORE 2

What was the aduit *mean (average)* attendance at the *concerts?* In the box below, provide the work that shows how you arrived at your answer.

120 + 136 + 126 + 150 532 ÷ 4

Correct process

133

Correct answer

Exemplary Response

Directions

Use the information in the chart below to do Numbers 9 and 10.

3 The Glee Club kept track of the attendance at each of their 4 performances. At the end of the 4 performances, they had the following information:

ATTENDANCE PER PERFORMANCE

Performance	Student	Adult
1	75	120
2	9s	136
3	110	126
4	100	150

SCORE 1

What was the adult mean (average) attendance at the concerts? In the box beiow, provide the work that shows how you arrived at your answer.

120 + 136 + 126 + 150 = 788
+3 1 2 3 4

788 ÷ 4 =

197

Correct process

Error in computation gives wrong answer -added 4 adult performances up to 788 instead of 532, which lead to the wrong answer when they divided by 4

Directions

Use the information in the chart below to do Numbers 9 and 10.

3

The Glee Club kept track of the attendance at each of their 4 performances. At the end of the 4 performances, they had the following information:

ATTENDANCE PER PERFORMANCE

Performance	Student	Adult
1	75	120
2	95	136
3	110	126
4	100	150

SCORE 0

what was the adult mean (average) attendance at the concerts? In the box below, provide the work that shows how you arrived at your answer.

130 It is a # that is in between each of the numbers.

Incorrect answer

No process shown

4 Which grade collected the greatest number of pounds of aluminum cans during the 3-week period? In the box below, provide the work that shows how you arrived at your answer.

Correct process

SCORE 2

Grd 6
11.7
14.75
12.8
39.25

Grd 7
12.1
13.2
14.0
39.30

Grd 8
8.3
17.4
13.5
39.20

Grade 7 *Correct answer*

Session 1

***Exemplary* Response**

4 Which grade collected the greatest number of pounds of aluminum cans during the **3-week** period? **In** the box beiow, provide the work that shows how you **arrived** at your answer.

SCORE 1

6th	7th	8th
11.7	12.1	8.3
14.75	13.2	17.4
+12.9	+14.0	+13.5
39.25	39.3	39.2

Correct process

6th grade won

Error in decimal comparison

Session 1

4 Which grade collected the *greatest* number of pounds of aluminum cans during the 3-week period? In the box below, provide the work that shows how you **arrived** at your answer..

SCORE 0

Incorrect answer

8th grade collected the greatest number.

13.5 aluminum cans
+293 newspapers
306.5

*Incorrect process--adds **aluminum** cans to **newspapers,** no understanding of task*

5. What procedure could you follow *to* estimate the total number of pounds of aluminum cans collected by *all* of the grades at the end of a lo-week period?

SCORE 1

average each grade then multiply that by 10 then add each grades totals together

13.09
3|39.25
-3
09
-9
25
-24
10

13.09
x 10

3.1
3|39.3

13.07
3|39.2
-3
09
-9
20
12

130.9
131.0
+130.7
392.6

rocedure could be to compute the mean (average) all the grades for the three weeks and then multiply is mean (average) by 10 weeks

Session 1

Exemplary Response

5 What procedure could you follow to estimate the total number of pounds of aluminum cans collected by *all* of the grades at the end of a 10-week period?

Take week 2's productivity and multiply it times 5.

SCORE 0

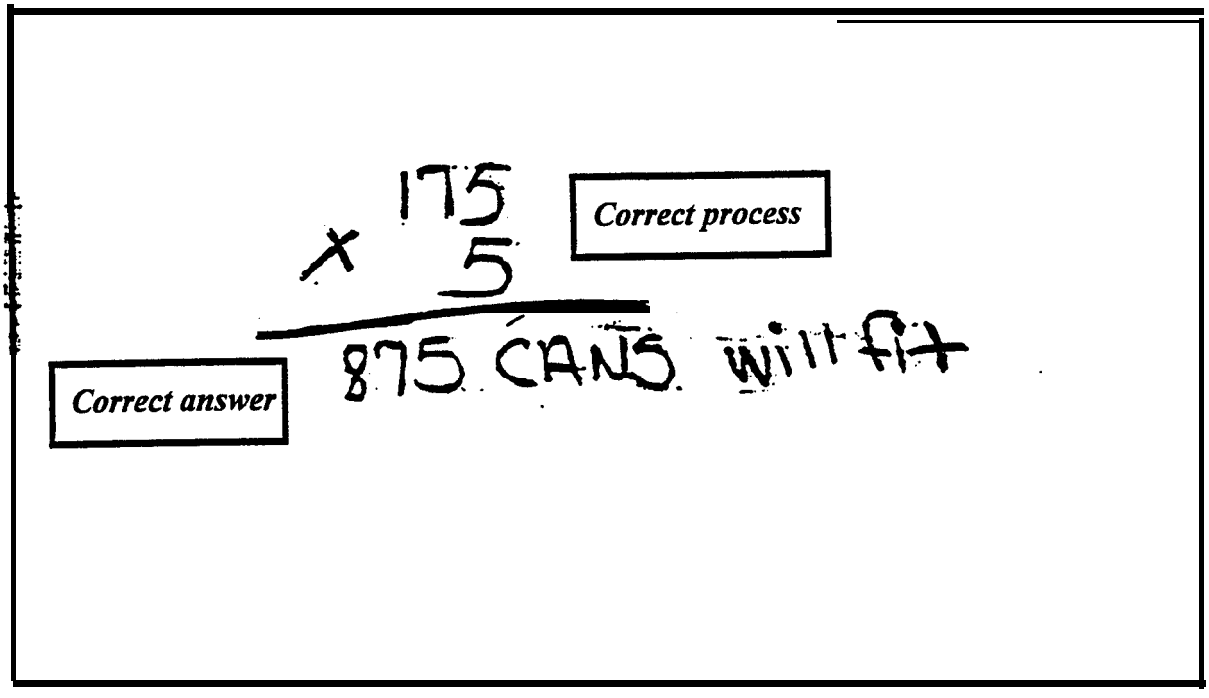
Incorrect answer-no understanding of procedure

Session 1

14

6 Your class has decided to crush the cans to save space. A full-size can is 5 inches tall, while a crushed can is 1 inch tall. If 175 full-size cans will fit into a garbage bag, about how many crushed cans will fit into the same bag? In the box below, provide the work that shows how you arrived at your answer.

SCORE 2



Exemplary Response

6 Your class has decided to crush the cans to save space. A full-size can is 5 inches tall, while a crushed can is 1 inch tall. If 175 full-size cans will fit into a garbage bag, about how many crushed cans will fit into the same bag? In the box below, provide the work that shows how you arrived at your answer.

SCORE 1

875

Correct answer

No process shown

6

Your class has decided to crush the cans to save space. A full-size can is 5 inches tall, while a crushed can is 1 inch tall. If 175 fulkize cans will fit into a garbage bag, about how many crushed cans wiil fit into the same bag? In the box beiow, provide the work that shows how you arrived at your answer.

SCORE 0

incorrect , process-incorrect numbers used

175
x 4
700 cans

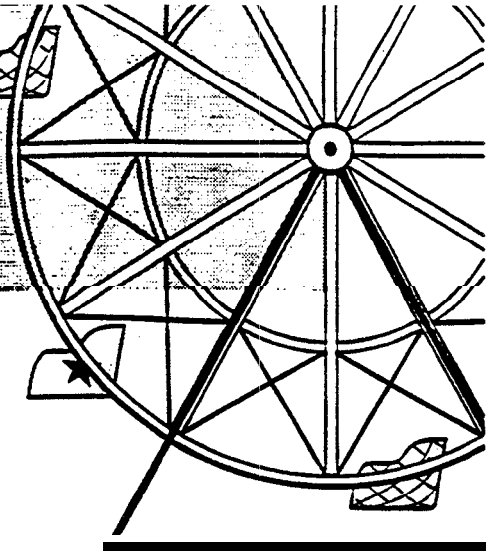
Incorrect answer

Session 1

17

185638

AMUSEMENT PARK



Directions

Numbers **1** through **5** are about an amusement park. Show **all** of your work and write your **answers directly** in this booklet.

7 A famiiy of four **wants** to spend 4 days at the Fun Land amusement park. There are three options for purchasing individual entrance passes for Fun **Land.** The table below shows the prices for the different options.

family of 4 4days

PASS PRICES

Type of Pass	Price
One-day	527.95
Three-day	580.95
Five-day	I f134.95

Which pass or combination of passes will be the *least* expensive for a family of four to purchase during their stay at Fun Land amusement park? **In** the box below, provide the work that shows how you arrived at your answer.

SCORE 2

Correct process

27.95
+80.95
108.90
4
x
435.60

134.95
x 4
539.80

27.95
x 4
111.80
4
x
447.20

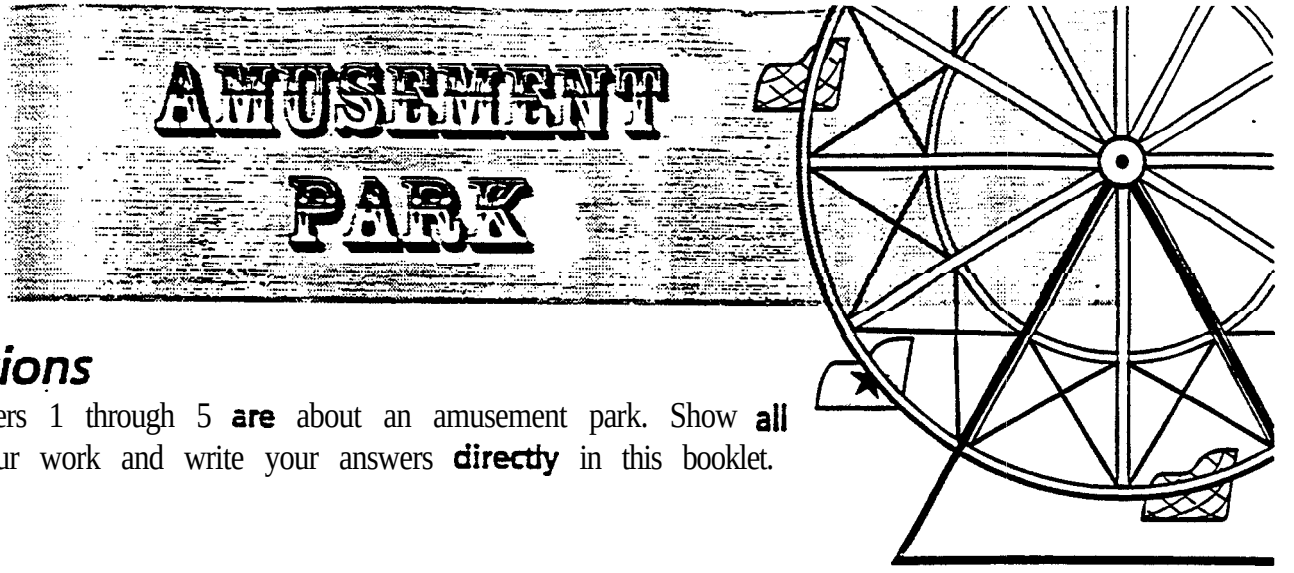
Correct answer

Purchase 4 one-day passes and 4 three-day passes

120128
74

Exemplary Response

Go On



Directions

Numbers 1 through 5 **are** about an amusement park. Show **all** of your work and write your answers **directly** in this booklet.

7 A family of four wants to spend 4 days at the Fun Land amusement park. There are three options for purchasing **individual** entrance passes for Fun Land. The table below shows the prices fcr the **different** options.

SCORE 1

PASS PRICES

Type of Pass	Price
One-dav	$27.95
Three-day	$80.95
Five-dav	$134.95

Which pass or **combination** of passes wiil be the ***least*** expensive for a family of four to purchase during their stay at Fun Land amusement park? In the box below, provide the work that shows how you arrived at your answer.

Buy 1 one day pass and 1 Three day pass

Correct answer

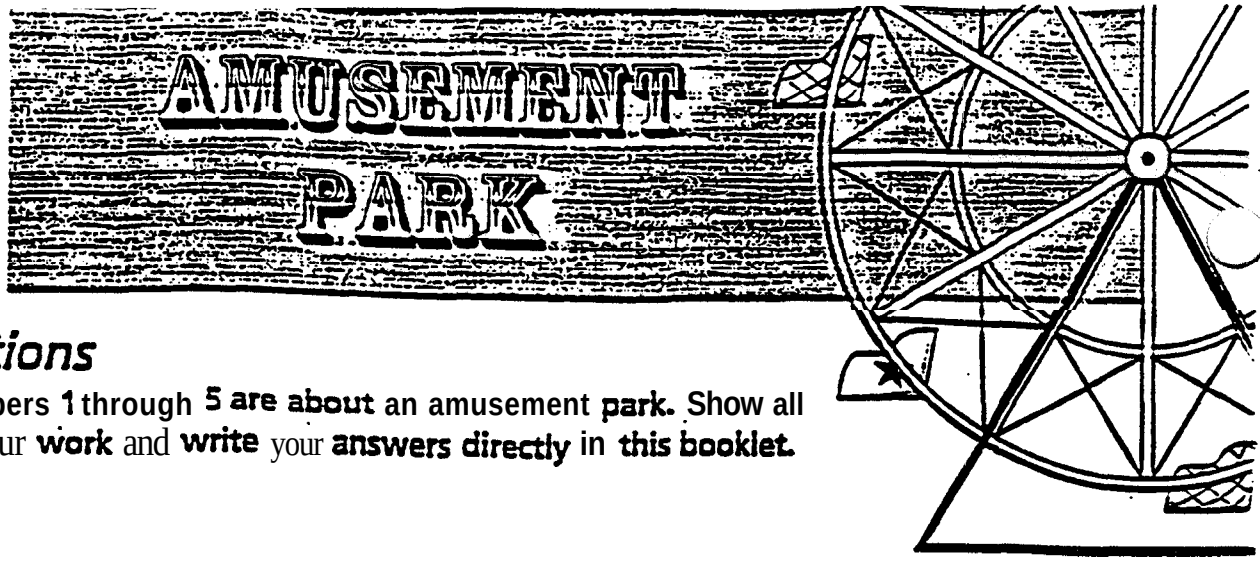
27.95+80.95=108.90

Partial process-shows work to get the 1 one-day pass and the 1 three-day pass

The response fails to Show a comparison

165267

Go On



Directions

Numbers 1 through 5 are about an amusement park. Show all of your work and write your answers directly in this booklet.

7 A family of four wants to spend 4 days at the Fun Land amusement park. There are three options for purchasing individual entrance passes for Fun Land. The table below shows the prices for the different options.

PASS PRICES

Type of Pass	Price
One-day	$27.95
Three-day	$80.95
Five-day	$134.95

SCORE 0

Which pass or combination of passes will be the *least* expensive for a family of four to purchase during their stay at Fun Land amusement park? In the box below, provide the work that shows how you arrived at your answer.

The three-day
$134.95
$80.95
$54 a piece

Incorrect process

Incorrect answer

8

Use the information in the **table** on Page 4 to **complete this problem. If** the trend **in the** cost of passes continues, **what do you predict would** be the **cost** of a one-day pass in the year **2005? In** the box below, **explain** how you arrived at **your** answer.

SCORE 2

1997 $28.00
1999 $30.50
2001 $32.00
2003 $33.50
2005 $35.50

Correct answer–Answer in the range of $30 - $40 ($35.50)

Add $1.50 then $2.50 then $1.50 then $1.50 then $2.00

Correct explanation

Exemplary Response

8 **Use the information in the** table on Page 4 to **complete** this problem. if **the** trend **in the cost of passes continues, what** do you predict would be the cost of a one-day **pass in the year 20051 In the box below, explain** how you arrived at **vour** answer.

SCORE 1

I think it will be 34 because I just repeated the process on the chart.

*Correct prediction with no **explanation**— answer in the range of* **$30** - $40

Session 1

142980

22

8 Use the information in the table on Page 4 to complete this problem. If the trend in the cost of passes continues, what do you predict would be the cost of a one-day pass in the year 2005? In the box below, explain how you arrived at your answer.

SCORE 0

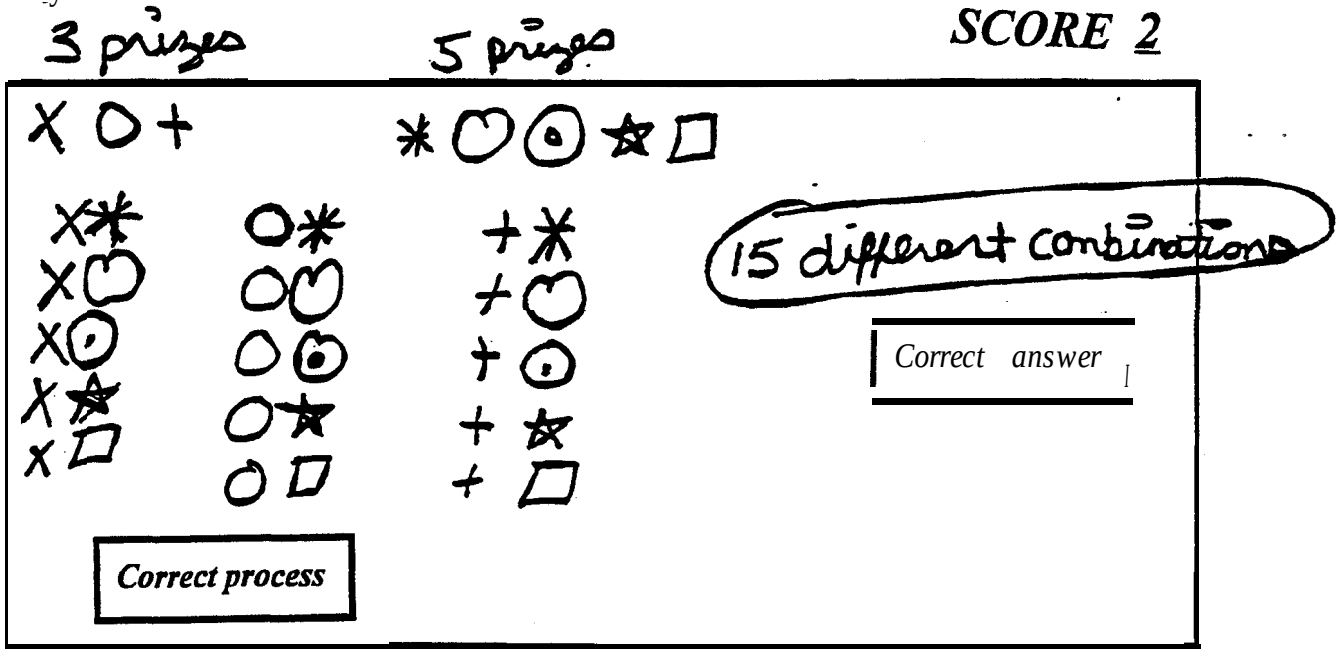
96 - 28.50 4
97 - 31.50 4½
98 - 35.50 5
99 - 39.50 5½
2000 - 44.50 6
2001 - 50.50 6
2002 - 56.50 6½
2003 - 63.50 7
2004 - 70.50 7½
2005 - 78.00 8

Incorrect explanation

It would be $78.00 because you add half every time

Incorrect prediction— not in the range of $30 - $40

9 Fun land has two very popular games on the midway. One of the games has 3 different prizes you can win and the other game has 5 different prizes. How many different combinations of one prize from each game could a player win? In the box below, provide the work that shows how you arrived at your answer.



Exemplary Response

9

Fun Land has two very popular games on the midway. One of the games has 3 different prizes you *can* win and the other game has 5 different prizes. How many different combinations of one prize from each game could a player win? In the box below, provide the work that shows how you arrived at your answer.

SCORE 1

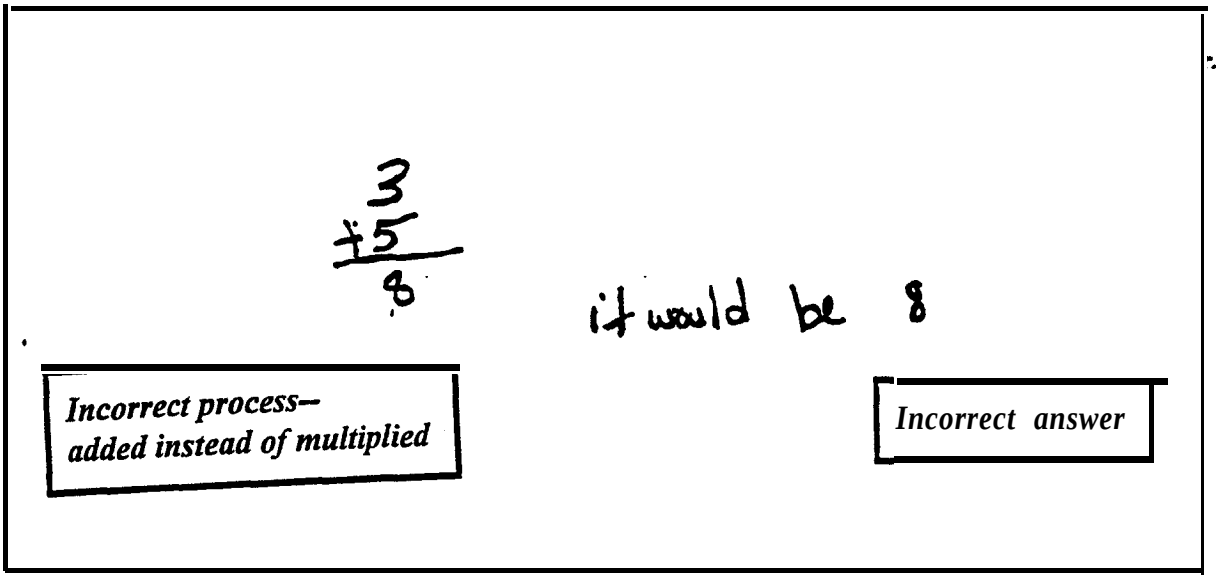
there are 15 different combinations

Correct answer

No process shown

9 Fun Land has **two** very popular games on the midway. One of the games has 3 different prizes you can win and the other game has 5 **different** prizes. **How** many different combinations of one prize from each game could a **player** win? In the **box below,** provide the work that shows how you arrived at your answer.

SCORE 0



SCORE 4

quantity	Fish	Length	cost
3	Angelfish	3 in each. 9 in total	$8.95 each $26.85 total
3	Clownbarb	1¼ in each 3¾ in total	$1.45 each $4.35 total
2	Gourami	2½ in each 5 in total	$3.95 each $7.90 total
4	Mollie	1½ in. each 6 in. total	$2.45 each $9.80 total
3	Neon Tetra	¾ in. each 2¼ in. total	$1.25 each $3.75 total
15		26 in total	$52.65 total
	Plants		
1	Fan Plant	6 in each 6 in. total	$1.95 each $1.95 total
2	Sword Plant	12 in each 24 in total	$5.95 each $11.90 total

26 in
52.65

5 kinds of fish
2 kinds of plants
26 in. of fish total
total cost is $66.50

MISSOURI MATH
FORM B
GRADE 8

ITEM 10/ SESSION 1 ANCHOR SCORE POINT 4

Student 's response filly addresses the performance event
Effectively *communicates all steps of the solution*

- *The total cost is between $6.5 and $75*
- *The number of plants purchased was at least 2 and did not exceed IO*
- *The number of hinds* ***of fish*** *purchased was at least 5*
- *Gives the total length of the fish--Extra information with respect to giving inches of plants does not* ***effect*** *the reasonableness of the solution*
- *Puts it into a table*

Budget "65 to"/5 must not
5 kinds of fish 35 must not exceed
2 kinds of plants not exceed 10

10

SCORE 3

Name	Cost	Length (in)	Total
Fish			
Angelfish	$8.95	3	$8.95
ClownLoach	$5.95	3	$5.95
Redtail Shark	$5.95	3	$5.95
Gourami	$3.95	$2\frac{1}{2}$	$3.95
Silver Hatchets	$2.95	$\frac{3}{4}$	$2.95
			27.75
Plants			
Sword Plant	$5.95 • 7 (# of plants)	12	$41.65
Wisteria	$2.95 • 1	12	$2.95
		Grand Total =	$72.35

Go

MISSOURI MATH
FORM B
GRADE 8

ITEM 10/ SESSION 1 *ANCHOR* *SCORE POINT 3*

Student 's response substantially addresses the performance event

Communicates most steps of the solution

- *The total cost is between $6.5 and $75*
- *The number of plants purchased was at least 2 and did not exceed IO*
- *The number of kinds of fish purchased was at least 5*
- *Puts it into a table*

The response fails to

- *Give total length of the fish*

10

SCORE 2

Fish:

4 algae eaters → 5.80
3 guppies → 1.05
2 Angelfish → 17.90
1 Catfish → 1.95
1 Clown Barb → 1.45
2 Red Tailed Sharks → 11.90

Plants:

2 Fan Plants → 3.90
4 Elodea → 3.00
1 Wisteria → 2.95
3 Sword Plants → 17.85

$40.05 fish
$27.70 plants
$67.75 total

Session 1

MISSOURI MATH
FORM B
GRADE 8

ITEM 10/ SESSION 1	*ANCHOR*	*SCORE POINT 2*

Student 's response partially addresses the performance event
Communicates some steps of the solution

- *The total cost is between $65 and $75*
- *The number of plants purchased was at least 2 and did not exceed 10*
- *The number of kinds of fish purchased was at least 5*

The response fails to

- *Give the total length of the fish*
- ~~*Does not put the information in the form of a table*~~
  Does not put the information into a complete organized way. (Have to infer what columns mean)

10

SCORE 2

	Name	Cost	Length
	Red tail shark	$5.95	3
	Platy	.95	1/2
	Guppy	.35	1
	Algae Eater	1.45	1
	Neon Tetra	1.25	3/4
Plants	Elodea	.75	8
Plants	Fan Plant	1.95	6
Plants	Wisteria	2.95	12
	Total	$15.60	7 1/4 in.

13857 1

33

MISSOURI MATH
FORM B
GRADE 8

ITEM 10/ SESSION 1 *ANCHOR* *SCORE POINT 2*

Student's response partially addresses the performance event
Communicates some ***steps*** *of the solution*

- *The number* ***of plants*** *purchased was at least 2 and did not exceed IO*
- *The number of kinds* ***of fish*** *purchased was at least 5*
- *Puts it into a table*

The response fails to

- *Stay in the range of $6.5 and $7.5*
- *Did not use more than one of* ***any fish--lack*** *of statistical understanding*

4. 5 world Plant $5.95 \times 4 = 23.80$

3 Redtail Sharks $5.95 \times 3 = 17.85$

2. Platy $.95 \times 2 = 1.90$

3. Angelfish $8.95 \times 3 = 26.85$

$23.80 + 17.85 = 41.65$

$41.65 + 1.90 = 43.55$

$43.55 + 26.85 = 70.40$

SCORE 1

MISSOURI MATH
FORM B
GRADE 8

ITEM 10/ SESSION 1 *ANCHOR* *SCORE POINT 1*

Student's response minimally addresses the performance event
Communicates few steps of the solution

- *The total cost is between $65 and $75*

The response fails to

- *Give the total length of the fish*
- *Does not purchase at least 2 plants*
- *Does not purchase at least 5 kinds of fish*
- *Does not put the information in the form of a table*

36

10

Angelfish $8.95
Catfish $1.95
Neon tetra $1.25
Redtail Shark $5.95
Silver Hatches $2.95

Sword Plant $5.95
Fan Plant $2.95

SCORE 0

MISSOURI MATH
FORM B
GRADE 8

ITEM 10/ SESSION 1	*ANCHOR*	*SCORE POINT 0*

Other-- *Work* *indicates no mathematical understanding of the task*

- *The number ofplantspurchased was at least 2 and did not exceed 10*
- *The number of kinds of fish purchased was at least 5*

The response failed to

- *Does not give a total cost*
- *Does not give the total length of the fish*
- *Does not put the information in the form of a table*

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